

# **PMC-LVDS CLOCK DRIVER**



#### FEATURES:

- 12 Output Channels (see description below)
- Hardware Sync and Clock I/O for Multiboard Synchronization
- Clock or Sync inputs can be LVDS or TTL.
- Additional LVDS to TTL and TTL to LVDS converters for independent signal conversions (AUX)
- Only +5VDC Required from PCI bus.
- Conforms to PCI Bus Specification, Revision 2.3
- Available on Adapters for Alternate Form Factors: PCI, cPCI, PC104-Plus

#### **General Standards Corporation**

### Overview:

The 12-channel PMC-LVDS Clock Driver Board provides a means of distributing LVDS signals among multiple boards, all from within a standard single-width PMC module. Optimized for flexibility and performance, the board is ideal for multi-board synchronization, LVDS to TTL conversion or TTL to LVDS.

## Functional Description:

The Board provides two channel groups, A or B, consisting of five LVDS output channels. Each group has an optional input that can be either LVDS or TTL. The selection is made possible via a jumper (J1) residing on the board. The installation of a jumper will assign Group A or B (or both), for LVDS inputs. Removing the jumper will configure the inputs for TTL. Having this option allows one group's input source (Group A) to be configured differently from the other group (Group B). Also, two auxiliary converters (AUX) have been added for independent signal conversion. AUX00 provides a TTL to LVDS conversion. AUX01 provides a LVDS to TTL conversion.

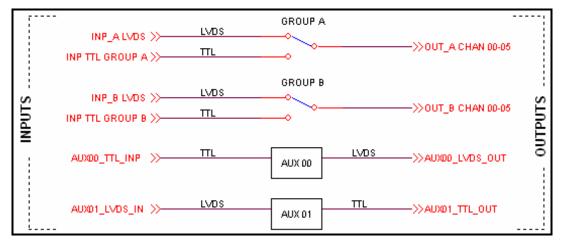


Figure 1. PMC-LVDS Clock Driver; Functional Organization

This product is functionally compatible with the IEEE PCI local bus specification Revision 2.3. System input/output connections are made at the front panel through a high-density 68-Pin I/O connector. Power requirements consist of +5 VDC, in compliance with the PCI specification.

# **ELECTRICAL SPECIFICATIONS**

At +25  $^{\rm O}$ C, with specified operating conditions.

#### **Power Requirements:**

+5.0 VDC  $\pm 0.25$  VDC at 0.75 watts typical. 1.7 watts maximum.

## Mechanical Characteristics:

(HxWxD): 13.5 mm (0.53 in) x 74.0 mm (2.91 in) x 149.0 mm (5.87 in)(Mechanical dimensions are shown for the native PMC form factor. See Ordering Information.)

## **Environmental Specifications:**

| Ambient Temperature Range:` | Operating: Standard: 0 to +65 degrees Celsius inlet air<br>Storage: -40 to +85 degrees Celsius. |
|-----------------------------|---|
| Relative Humidity:          | Operating: 0 to 80%, non-condensing<br>Storage: 0 to 95%, non-condensing                        |
| Altitude:                   | Operation to 10,000 ft.   |
| Cooling:                    | Conventional convection cooling; 150 LFPM   |

## **Ordering Information:**

| Basic Model Number        | Form Factor       |  |
|---------------------------|-------------------|--|
| PMC-LVDS Clock Driver     | PMC (Native)      |  |
| PCI- LVDS Clock Driver *  | PCI, short length |  |
| cPCI- LVDS Clock Driver * | cPCI, 3U          |  |

\* PMC module installed and tested on an adapter, with mechanical and functional equivalency. Contact factory for availability in native form factors.

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# SYSTEM I/O CONNECTIONS

#### I/O CONNECTOR PIN ASSIGNMENTS

| PIN     FUNCTION       1     GND       2     GND       3     OUT_A CHAN 00 LO       4     OUT_A CHAN 00 LO       4     OUT_A CHAN 00 HI       5     GND       6     GND       7     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 LI       9     GND       10     GND       11     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 LO       11     OUT_A CHAN 04 LO       11     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 LO       13     GND       14     GND       15     OUT_B CHAN 00 LO       16     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LI       21     GND       22     GND       23     OUT_B CHAN 04 LO       24     OUT_B CHAN 04 LO       25     GND       26     GND       27     INP AUX01 LO       28   | ROW-A |                  | ROW-B       |                  |  |
|--|-------|------------------|-------------|------------------|--|
| 1   GND     2   GND     3   OUT_A CHAN 00 LO     3   OUT_A CHAN 00 LO     4   OUT_A CHAN 00 HI     5   GND     6   GND     7   OUT_A CHAN 02 LO     8   OUT_A CHAN 02 LO     8   OUT_A CHAN 02 LO     8   OUT_A CHAN 02 LO     9   GND     10   GND     11   OUT_A CHAN 04 LO     12   OUT_A CHAN 04 LO     11   INP_A LVDS LO     12   OUT_A CHAN 04 HI     13   GND     14   GND     15   OUT_B CHAN 00 LO     16   OUT_B CHAN 00 LO     16   OUT_B CHAN 02 LO     20   OUT_B CHAN 02 LO     20   OUT_B CHAN 02 LO     21   GND     22   GND     23   OUT_B CHAN 04 LO     24   OUT_B CHAN 04 LO     25   GND     26   GND     27   INP AUX01 LO     28   INP AUX01 LO  <  |       |                  | · · · · · · |                  |  |
| 2     GND       3     OUT_A CHAN 00 LO       4     OUT_A CHAN 00 HI       5     GND       6     GND       7     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 LO       9     GND       10     GND       11     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 LO       13     GND       14     GND       15     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 LO       17     GND       18     GND       19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LO       21     GND       22     GND       23     OUT_B CHAN 04 LO       24     OUT_B CHAN 04 LO       25     GND       26     GND       27  |       |                  |             |                  |  |
| 3     OUT_A CHAN 00 LO       4     OUT_A CHAN 00 HI       5     GND       6     GND       7     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 LO       9     GND       10     GND       11     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 LO       13     GND       14     GND       15     OUT_B CHAN 04 LO       15     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 LO       16     OUT_B CHAN 02 LO       17     GND       18     GND       19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LO       21     GND       22     GND       23     OUT_B CHAN 04 LO       24     OUT_B CHAN 04 LO       25     GND       26     GND       27     INP AUX01 LO       28     INP AUX01 HI       29     GND       30 <t< td=""><td></td><td></td><td></td><td></td></t<>  |       |                  |             |                  |  |
| 4     OUT_A CHAN 00 HI     4     OUT_A CHAN 01 HI       5     GND     6     GND       6     GND     6     GND       7     OUT_A CHAN 02 LO     7     OUT_A CHAN 03 LO       8     OUT_A CHAN 02 LO     7     OUT_A CHAN 03 LO       9     GND     8     OUT_A CHAN 03 LO       10     GND     10     GND       11     OUT_A CHAN 04 LO     11     INP_A LVDS LO       12     OUT_A CHAN 04 LO     11     INP_A LVDS LO       12     OUT_A CHAN 04 HI     12     INP_A LVDS HI       13     GND     14     GND       14     GND     15     OUT_B CHAN 01 LO       16     OUT_B CHAN 02 LO     19     OUT_B CHAN 03 LO       18     GND     18     GND       19     OUT_B CHAN 02 HI     20     OUT_B CHAN 03 LO       21     GND     22     GND     23       22     GND     22     GND     23       23     OUT_B CHAN 04 LO <td< td=""><td></td><td></td><td></td><td></td></td<> |       |                  |             |                  |  |
| 5     GND       5     GND       6     GND       7     OUT_A CHAN 02 LO       8     OUT_A CHAN 02 HI       9     GND       10     GND       11     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 LO       13     GND       14     GND       15     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 LO       16     OUT_B CHAN 02 LO       17     GND       18     GND       19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LO       21     GND       22     GND       23     OUT_B CHAN 02 HI       24     OUT_B CHAN 04 HI       25     GND       26     GND       27     INP AUX01 LO       28     INP AUX01 HI       29     GND       30     GND       30     GND       31     OUT AUX00 LO <tr< td=""><td></td><td>_</td><td>-</td><td></td></tr<>  |       | _                | -           |                  |  |
| 6     GND     6     GND       7     OUT_A CHAN 02 LO     7     OUT_A CHAN 03 LO       8     OUT_A CHAN 02 LI     8     OUT_A CHAN 03 LO       9     GND     9     GND       10     GND     10     GND       11     OUT_A CHAN 04 LO     11     INP_A LVDS LO       12     OUT_A CHAN 04 LO     11     INP_A LVDS LO       12     OUT_A CHAN 04 LO     11     INP_A LVDS LO       13     GND     14     GND       14     GND     14     GND       15     OUT_B CHAN 00 LO     15     OUT_B CHAN 01 HI       17     GND     18     GND       18     GND     18     GND       19     OUT_B CHAN 02 HI     20     OUT_B CHAN 03 LO       22     GND     22     GND       23     OUT_B CHAN 04 LO     23     INP_B LVDS LO       24     INP_AUX01 LO     25     GND       25     GND     26     GND       30  | -     | _                | -           | _                |  |
| 7   OUT_A CHAN 02 LO   7   OUT_A CHAN 03 LO     8   OUT_A CHAN 02 HI   8   OUT_A CHAN 03 HI     9   GND   9   GND     10   GND   10   GND     11   OUT_A CHAN 04 LO   11   INP_A LVDS LO     12   OUT_A CHAN 04 HI   12   INP_A LVDS HI     13   GND   14   GND     14   GND   14   GND     15   OUT_B CHAN 00 LO   15   OUT_B CHAN 01 HI     17   GND   16   OUT_B CHAN 01 HI     17   GND   18   GND     18   GND   18   GND     19   OUT_B CHAN 02 LO   20   OUT_B CHAN 03 LO     20   OUT_B CHAN 02 LO   20   OUT_B CHAN 03 LO     21   GND   22   GND   23     22   GND   23   INP_B LVDS LO   24     23   OUT_B CHAN 04 LO   24   INP_B LVDS HI     25   GND   26   GND     26   GND   27   GND  |       |                  | -           | _                |  |
| 8     OUT_A CHAN 02 HI     8     OUT_A CHAN 03 HI       9     GND     9     GND       10     GND     10     GND       11     OUT_A CHAN 04 LO     11     INP_A LVDS LO       12     OUT_A CHAN 04 HI     12     INP_A LVDS HI       13     GND     14     GND       14     GND     14     GND       15     OUT_B CHAN 00 LO     15     OUT_B CHAN 01 HI       17     GND     16     OUT_B CHAN 02 LO       18     GND     18     GND       19     OUT_B CHAN 02 LO     19     OUT_B CHAN 03 LO       20     OUT_B CHAN 02 HI     21     GND       21     GND     22     GND       22     GND     23     INP_B CHAN 04 LO       23     OUT_B CHAN 04 LO     23     INP_B LVDS HI       25     GND     26     GND       26     GND     27     GND       28     INP AUX01 LO     28     INP AUX00 TTL       29 </td <td></td> <td></td> <td></td> <td></td>                         |       |                  |             |                  |  |
| 9     GND     9     GND       10     GND     10     GND       11     OUT_A CHAN 04 LO     11     INP_A LVDS LO       12     OUT_A CHAN 04 HI     12     INP_A LVDS HI       13     GND     14     GND       14     GND     14     GND       15     OUT_B CHAN 00 LO     15     OUT_B CHAN 01 HI       17     GND     16     OUT_B CHAN 01 HI       17     GND     18     GND       18     GND     18     GND       19     OUT_B CHAN 02 LO     20     OUT_B CHAN 03 LO       20     OUT_B CHAN 02 HI     21     GND       21     GND     22     GND       22     GND     23     INP_B LVDS LO       24     OUT_B CHAN 04 HI     24     INP_B LVDS HI       25     GND     26     GND       26     GND     27     GND       28     INP AUX01 HI     28     INP AUX01 TTL       29     GND   |       | _                |             |                  |  |
| 10     GND       11     OUT_A CHAN 04 LO       11     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 HI       13     GND       14     GND       15     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 HI       17     GND       18     GND       19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LO       21     GND       22     GND       23     OUT_B CHAN 04 LO       24     OUT_B CHAN 04 LO       25     GND       26     GND       27     INP AUX01 LO       28     INP AUX01 HI       29     GND       30     GND       31     OUT AUX00 HI       32     OUT AUX00 HI   |       |                  |             |                  |  |
| 11     OUT_A CHAN 04 LO       12     OUT_A CHAN 04 HI       13     GND       14     GND       15     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 HI       17     GND       18     GND       19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LO       21     GND       18     GND       19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LO       21     GND       22     GND       23     OUT_B CHAN 04 LO       24     OUT_B CHAN 04 LO       25     GND       26     GND       27     INP AUX01 LO       28     INP AUX01 HI       29     GND       30     GND       30     GND       31     OUT AUX00 HI       32     OUT AUX00 HI       33     NC   |       |                  | -           |                  |  |
| 12     OUT_A CHAN 04 HI     12     INP_A LVDS HI       13     GND     13     GND       14     GND     14     GND       15     OUT_B CHAN 00 LO     15     OUT_B CHAN 01 LO       16     OUT_B CHAN 00 HI     16     OUT_B CHAN 01 HI       17     GND     16     OUT_B CHAN 02 LO       19     OUT_B CHAN 02 LO     19     OUT_B CHAN 03 LO       20     OUT_B CHAN 02 LO     20     OUT_B CHAN 02 HI       21     GND     21     GND       22     GND     22     GND       23     OUT_B CHAN 04 LO     23     INP_B LVDS LO       24     OUT_B CHAN 04 HI     25     GND       26     GND     26     GND       27     INP AUX01 LO     27     GND       28     INP AUX01 HI     28     INP AUX01 TTL       29     GND     30     OUT AUX00 LO     31       33     NC     33     GND     33  |       |                  |             | -                |  |
| 14   GND     15   OUT_B CHAN 00 LO     16   OUT_B CHAN 00 HI     17   GND     18   GND     19   OUT_B CHAN 02 LO     20   OUT_B CHAN 02 LI     21   GND     22   GND     23   OUT_B CHAN 04 LO     24   OUT_B CHAN 04 LO     25   GND     26   GND     27   INP AUX01 LO     28   INP AUX01 HI     29   GND     30   GND     30   GND     31   OUT AUX00 HI     32   OUT AUX00 HI  |       | _                |             |                  |  |
| 15     OUT_B CHAN 00 LO       16     OUT_B CHAN 00 HI       17     GND       18     GND       19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 HI       21     GND       22     GND       23     OUT_B CHAN 04 LO       24     OUT_B CHAN 04 HI       25     GND       26     GND       27     INP AUX01 LO       28     INP AUX01 HI       29     GND       30     GND       31     OUT AUX00 HI       32     OUT AUX00 HI       33     NC  | 13    | GND              | 13          | GND              |  |
| 16     OUT_B CHAN 00 HI     16     OUT_B CHAN 01 HI       17     GND     16     OUT_B CHAN 01 HI       18     GND     18     GND       19     OUT_B CHAN 02 LO     19     OUT_B CHAN 03 LO       20     OUT_B CHAN 02 HI     20     OUT_B CHAN 03 LO       21     GND     21     GND       22     GND     22     GND       23     OUT_B CHAN 04 LO     23     INP_B LVDS LO       24     OUT_B CHAN 04 HI     24     INP_B LVDS HI       25     GND     26     GND       26     GND     27     GND       28     INP AUX01 LO     28     INP AUX01 TTL       29     GND     30     OUT AUX01 TTL       31     OUT AUX00 LO     31     GND       32     OUT AUX00 HI     32     INP TTL GROUP A  | 14    | GND              | 14          | GND              |  |
| 17   GND     18   GND     19   OUT_B CHAN 02 LO     20   OUT_B CHAN 02 HI     21   GND     22   GND     23   OUT_B CHAN 04 LO     24   OUT_B CHAN 04 HI     25   GND     26   GND     27   INP AUX01 LO     28   INP AUX01 HI     29   GND     30   GND     30   GND     31   OUT AUX00 LO     32   OUT AUX00 HI     33   NC   | 15    | OUT_B CHAN 00 LO | 15          | OUT_B CHAN 01 LO |  |
| 18   GND     19   OUT_B CHAN 02 LO     20   OUT_B CHAN 02 HI     21   GND     22   GND     23   OUT_B CHAN 04 LO     24   OUT_B CHAN 04 HI     25   GND     26   GND     27   INP AUX01 LO     28   INP AUX01 HI     29   GND     30   GND     30   GND     31   OUT AUX00 HI     32   OUT AUX00 HI     33   NC  | 16    | OUT_B CHAN 00 HI | 16          | OUT_B CHAN 01 HI |  |
| 19     OUT_B CHAN 02 LO       20     OUT_B CHAN 02 HI       21     GND       22     GND       23     OUT_B CHAN 04 LO       24     OUT_B CHAN 04 LO       25     GND       26     GND       27     INP_B CHAN 04 HI       25     GND       26     GND       27     INP AUX01 LO       28     INP AUX01 HI       29     GND       30     GND       30     GND       31     OUT AUX00 LO       32     OUT AUX00 HI       33     NC   | 17    | GND              | 17          | GND              |  |
| 20     OUT_B CHAN 02 HI     20     OUT_B CHAN 03 HI       21     GND     21     GND       22     GND     22     GND       23     OUT_B CHAN 04 LO     23     INP_B LVDS LO       24     OUT_B CHAN 04 HI     24     INP_B LVDS HI       25     GND     26     GND       26     GND     26     GND       27     INP AUX01 LO     27     GND       28     INP AUX01 HI     28     INP AUX00 TTL       29     GND     30     OUT AUX00 LO       31     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 18    | GND              | 18          | GND              |  |
| 21     GND     21     GND       22     GND     22     GND       23     OUT_B CHAN 04 LO     23     INP_B LVDS LO       24     OUT_B CHAN 04 HI     24     INP_B LVDS HI       25     GND     26     GND       27     INP AUX01 LO     27     GND       28     INP AUX01 HI     28     INP AUX00 TTL       29     GND     30     OUT AUX00 LO       31     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 19    | OUT_B CHAN 02 LO | 19          | OUT_B CHAN 03 LO |  |
| 22   GND     23   OUT_B CHAN 04 LO     24   OUT_B CHAN 04 HI     25   GND     26   GND     27   INP AUX01 LO     28   INP AUX01 HI     29   GND     30   GND     31   OUT AUX00 HI     32   OUT AUX00 HI     33   NC   | 20    | OUT_B CHAN 02 HI | 20          | OUT_B CHAN 03 HI |  |
| 23   OUT_B CHAN 04 LO     24   OUT_B CHAN 04 HI     25   GND     26   GND     27   INP AUX01 LO     28   INP AUX01 HI     29   GND     30   GND     31   OUT AUX00 HI     32   OUT AUX00 HI     33   NC  | 21    | GND              | 21          | GND              |  |
| 24     OUT_B CHAN 04 HI     24     INP_B LVDS HI       25     GND     25     GND       26     GND     26     GND       27     INP AUX01 LO     27     GND       28     INP AUX01 HI     28     INP AUX00 TTL       29     GND     30     OUT AUX00 LO       31     OUT AUX00 LO     31     GND       32     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 22    | GND              | 22          | GND              |  |
| 25     GND     25     GND       26     GND     26     GND       27     INP AUX01 LO     27     GND       28     INP AUX01 HI     28     INP AUX00 TTL       29     GND     30     OUT AUX00 LO       30     GND     30     OUT AUX00 LO       32     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND  | 23    | OUT_B CHAN 04 LO | 23          | INP_B LVDS LO    |  |
| 26     GND     26     GND       27     INP AUX01 LO     27     GND       28     INP AUX01 HI     28     INP AUX00 TTL       29     GND     29     GND       30     GND     30     OUT AUX00 LO       31     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 24    | OUT_B CHAN 04 HI | 24          | INP_B LVDS HI    |  |
| 27     INP AUX01 LO     27     GND       28     INP AUX01 HI     28     INP AUX00 TTL       29     GND     30     OUT AUX00 LO     30     OUT AUX00 HI       31     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 25    | GND              | 25          | GND              |  |
| 28     INP AUX01 HI     28     INP AUX00 TTL       29     GND     29     GND       30     GND     30     OUT AUX00 LO     31     GND       31     OUT AUX00 LO     31     GND     32     INP TTL GROUP A       33     NC     33     GND     33     GND   | 26    | GND              | 26          | GND              |  |
| 29     GND     29     GND       30     GND     30     OUT AUX01 TTL       31     OUT AUX00 LO     31     GND       32     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 27    | INP AUX01 LO     | 27          | GND              |  |
| 30     GND     30     OUT AUX01 TTL       31     OUT AUX00 LO     31     GND       32     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 28    | INP AUX01 HI     | 28          | INP AUX00 TTL    |  |
| 31     OUT AUX00 LO     31     GND       32     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND   | 29    | GND              | 29          | GND              |  |
| 32     OUT AUX00 HI     32     INP TTL GROUP A       33     NC     33     GND  | 30    | GND              | 30          | OUT AUX01 TTL    |  |
| 33 NC 33 GND   | 31    | OUT AUX00 LO     | 31          | GND              |  |
|  | 32    | OUT AUX00 HI     | 32          | INP TTL GROUP A  |  |
|  | 33    | NC               | 33          | GND              |  |
| 34 INF TIL GROUP B   | 34    | NC               | 34          | INP TTL GROUP B  |  |

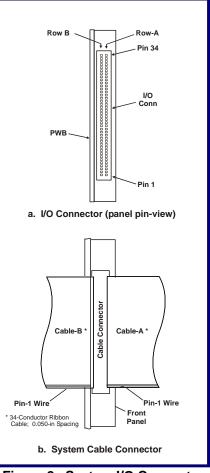


Figure 2. System I/O Connector

#### **System Cable Mating Connector:**

68-pin 0.050" Subminiature connector: with metal shield: AMP #749621-7 or equivalent.

I/O Connector Installed on Board (Ref): Amp # 787170-7

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## **General Standards Corporation**

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